

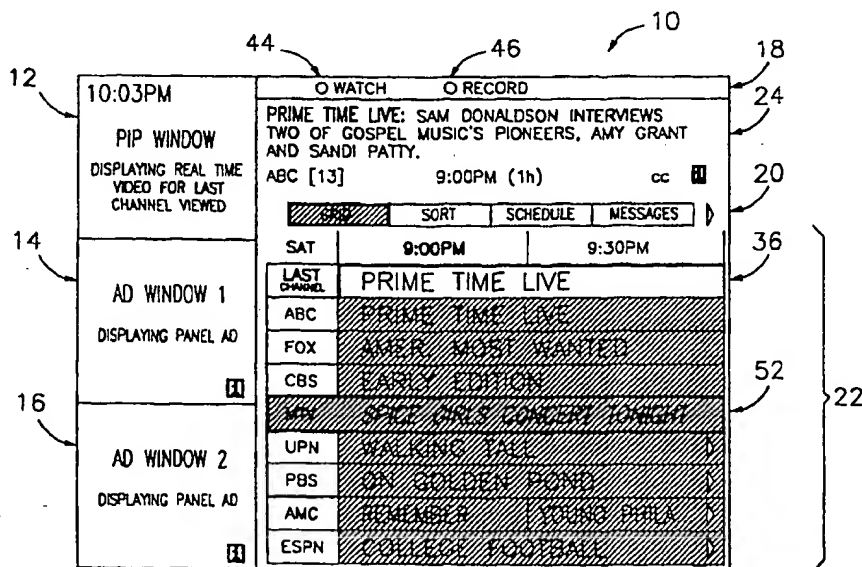
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(54) Title: SYSTEMS AND METHODS FOR AUDIENCE MONITORING



(57) Abstract

The present invention provides for modemless communication of television viewer profile data to a central location for analysis and interpretation of viewer interaction with the viewer's television and/or with an on-screen electronic program guide (10).

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SYSTEMS AND METHODS FOR AUDIENCE MONITORING

5 **FIELD OF THE INVENTION**

The present invention relates generally to television systems, and more particularly, to the communication of, statistics and characteristics concerning viewer interactions with a television, including the viewer's interactions with an interactive electronic program guide ("EPG").

10 **BACKGROUND OF THE INVENTION**

It is highly desirable to be able to monitor various television viewer interactions with the viewer's television set. For instance, an advertiser would find it instructive to know which television programs a viewer watches, which advertisements a viewer watches, the number of times a viewer changes channels, and what the viewer was watching immediately before changing channels. An advertiser would also find it instructive to know the number of times a viewer of an EPG, such as Guide Plus+™, accesses the guide during a specific time period, what program or advertisement the viewer was watching immediately before entering the EPG, and other information concerning the viewer's interaction with the viewer's television and the EPG. Such information can be used to analyze the valuation of advertising on television and through an EPG.

The traditional way to monitor some of this information has been to equip a select number of television sets with modems, as is done to collect the Nielsen statistics. Typically, the modem-equipped television sets are placed in selected homes, whereby data concerning the viewing habits of the persons in the monitored homes is collected and is transmitted to a central location on some periodic basis, such as on a nightly basis. The above-described modem-equipped television method is expensive and cumbersome, and only provides data for a limited number of selected households.

Currently co-pending U.S. Patent Application, Attorney Docket No. 32714/LTR/E190 (Application No. not yet assigned) ("SYSTEMS AND METHODS FOR DISPLAYING AND RECORDING CONTROL INTERFACE WITH TELEVISION PROGRAMS, VIDEO, ADVERTISING INFORMATION AND PROGRAM SCHEDULING INFORMATION") discloses an extensive system and method for capturing raw viewer profile data and for analyzing that data and the disclosure of which is incorporated herein by reference as if fully stated here. Such viewer profile information would provide advertisers with information with which further advertising decisions can be made. For instance, such information can be used to evaluate the effectiveness of a particular advertisement. Such viewer profile information can be used to filter program listings or advertisements, and can be used to customize delivery of advertisements to particular viewers.

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In this embodiment, 0701970801971436 might stand for the time period from July 1 to August 1, 1997, during which time the user accessed the EPG 1436 times.

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Upon pressing a unique combination of remote control keys, the stored data is displayed as a string of numbers on an information screen on the television monitor. As an alternative to pressing the unique combination of remote control keys, the user can be prompted to select the appropriate information screen from the EPG menu.

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In this embodiment, a staff representative of an EPG information provider, e.g., a staff representative for the Guide Plus customer service center, could call television viewers/EPG users (hereinafter, EPG user) to ask the EPG users to read aloud the encoded information. A computer at the EPG information provider office could generate requests for EPG users to be called. The request could automatically dial the telephone number of each selected EPG user. Phone numbers for EPG users could, for example, be collected from warranty card information for television sets in which the software was installed.

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In this embodiment, the staff representative would ask the EPG user to access the encoded information by, for instance, pressing a unique key combination on the viewer's remote control device, or by selecting a particular information screen option from the EPG's menu. The EPG user would then be asked to read aloud the numbers displayed on the information screen.

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The encoded viewer profile information read aloud by the EPG user must be provided to the centralized EPG information service provider's computer. One way to do so is for the audio signal from the telephone to be connected directly to a computer with speech recognition capabilities. Another way to provide the information to the centralized computer is for the EPG information provider staff representative to enter the encoded information online to the computer as the numeric strings are read aloud by the EPG user.

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Once the EPG user finishes reading the numbers from the screen, the EPG staff representative would signal the computer that the data collection for the particular user has been completed. At that point, the computer could generate the next request and dial the telephone number for the next EPG user.

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In another embodiment of the invention, the viewer profile data is collected and is converted into digital representations of audio tones. Then, when the special key combination is pressed, or when the user selects the special information screen, the data is output as audio tones from the television speaker.

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In this embodiment, the EPG information provider staff representative would call EPG users, as is described above, and request that the EPG user place the telephone handset near the speaker of the television before pressing the appropriate remote control device key combination, or selecting the appropriate information screen. In this embodiment, there is, at the EPG service provider's location, a telephone connection directly to the centralized EPG service provider's

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terms for the dictionary of terms can be used. As an other example, the number of words in the dictionary can vary; any number of words could be used.

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5. A microprocessor programmed to operate with a display monitor having a screen and a RAM local to said microprocessor so as to generate signals that display information stored in the RAM on the display monitor;

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said microprocessor additionally programmed to store in said RAM every viewer instruction sent to the television by the viewer's remote control device and store in said RAM data related to the status of the television, the television tuner and the content of the signal tuned immediately prior to said instruction to the television and immediately following said instruction to the television, including but not limited to the: Date of said instruction, time of said instruction, channel tuned by said television immediately prior to said instruction, channel tuned immediately following said instruction, operating mode of said television immediately prior to said instruction, operating mode of said television immediately following said instruction, the identity of advertisements that the viewer watched, the identity of advertisements that the viewer was watching immediately before changing channels, the identity of programs that the viewer watched, and the identity of programs that the viewer was watching immediately before changing channels.

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6. The microprocessor of claim 5, additionally programmed to:
retrieve television scheduling data, including program titles, advertising data, and other types of information including but not limited to news data, and sports data;
display said television scheduling data, said advertising data, and said other types of information including but not limited to said news data, and said sports data on said display monitor in viewable form as an on screen electronic television program guide;
provide for the selection of one of the displayed program titles from display of said on screen electronic television program guide for display on said display monitor;
provide for the selection of one of the displayed program titles for recording;
provide for the selection of one of the displayed program titles for watching;
provide for the selection of advertisements displayed on said display monitor as part of said on screen electronic television program guide for display of additional information concerning said advertisement.

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7. The microprocessor of claim 6, additionally programmed to:
store in said RAM every viewer instruction sent to said on screen electronic television program guide by the viewer's remote control device and store in said RAM data concerning the on screen television program guide and the content of said guide immediately prior to said instruction to said guide and immediately following said instruction to said guide, including but not limited to: the identity of every said displayed program title for which the viewer requests

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said microprocessor additionally programmed to store said binary representations of digitized audio sounds in said RAM local to said microprocessor;

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said microprocessor additionally programmed to produce, in response to user instruction, digitized audio sounds, representative of said binary representation of digitized audio sounds;

a second microprocessor programmed to recognize said digitized audio sounds;

said second microprocessor programmed to decode said digitized audio sounds to binary representations of said audio sounds;

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said second microprocessor programmed to convert said binary representation of said audio sounds to binary representations of said viewer instruction data and said related data.

13. The microprocessor of claim 7, additionally programmed to translate said stored viewer instruction data into binary representations of digitized audio sounds;

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said microprocessor additionally programmed to store said binary representations of digitized audio sounds in said RAM local to said microprocessor;

said microprocessor additionally programmed to produce, in response to user instruction, digitized audio sounds, representative of said binary representation of digitized audio sounds;

a second microprocessor programmed to recognize said digitized audio sounds;

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said second microprocessor programmed to decode said digitized audio sounds to binary representations of said audio sounds;

said second microprocessor programmed to convert said binary representation of said audio sounds to binary representations of viewer instruction data and said related data.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US98/15890

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : H04N 7/10

US CL : 345/327, 348/2

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 345/327, 348/2, 1, 906, 554, 7-13.

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,519,433 A (LAPPINGTON ET AL) 21 MAY 1996, FIGURES 1-19	1-13
A	US 5,758,257 A (HERS ET AL.) 26 MAY 1998, FIGURES 1-11.	1-13



Further documents are listed in the continuation of Box C.



See patent family annex.

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Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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